



CHEMISTRY NMDCAT

(UNIT-1)

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SAEED MDCAT

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TOPICS

✓ INTRODUCTION TO FUNDAMENTAL CONCEPTS OF CHEMISTRY

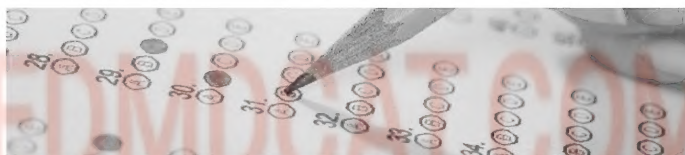
- Q.1** 72g of glucose contains how many moles of glucose
 a. 0.2
 b. 0.6
 c. 0.4
 d. 0.5
- Q.2** The number of molecules in 8.96 dm^3 of a gas at 0°C and 1 atm pressure is?
 a. 6.02×10^{23}
 b. 2.408×10^{24}
 c. 1.204×10^{24}
 d. 2.408×10^{23}
- Q.3** When 0.5 mole of sulphuric acid is dissolved in aqueous solution how many moles of -ve and +ve ions are collected altogether (assuming complete dissociation)
 a. 0.5
 b. 1.0
 c. 1.5
 d. 2.0
- Q.4** How many moles of neutron are present in 1 mole of water?
 a. 18
 b. 10
 c. 8
 d. 20
- Q.5** Which of following has minimum number of particles
 a. 1 g of Na
 b. 1 g of K
 c. 1 g of H_2
 d. 1 g of N_2
- Q.6** Which of the following term is used for the mass of chlorine 35.5 amu?
 a. Relative atomic mass
 b. Fractional atomic mass
 c. Average atomic mass
 d. All of these
- Q.7** Avogadro's number is the number of molecules present in
 a. 1 dm^3 of molecule
 b. 1 g of formula mass
 c. 1 g molecule
 d. 1 g of atom
- Q.8** CH_3O is the empirical formula of
 a. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
 b. CH_3COOH
 c. $\text{CH}_2(\text{OH})\text{CH}_2(\text{OH})$
 d. CH_3CHO
- Q.9** An atom of Mg is six times heavier than _____ atom
 a. H
 b. Ne
 c. He
 d. Li
- Q.10** For which of the following compounds, the term empirical formula can be applied
 a. NaCl
 b. H_2O
 c. CCl_4
 d. All of these
- Q.11** Which of the following has same number of atoms as in 1.2g of graphite?
 a. 12g of C
 b. 11g of Na
 c. 3g of diamond
 d. 2.4g of Mg
- Q.12** The sole product of organic compounds after combustion analysis that is absorbed in 50% KOH
 a. CO_2
 b. O_2
 c. H_2O
 d. CO
- Q.13** 24g of organic compound is burnt in excess of O_2 , 1.1g CO_2 is produced. The percentage of C in this compound is
 a. 2.5%
 b. 1.25%
 c. 12.5%
 d. 6.25%
- Q.14** For stoichiometry calculations, we have to assume
 a. Mass of reactant is less than mass of products



- b. All the reactants are completely converted into products
c. Side reactions occur
d. Reaction is reversible
- Q.15** 0.5 mole of H_2O is formed when 1g H_2 reacts with _____ g of O_2
a. 32
b. 8
c. 4
d. 16
- Q.16** Total number of electrons present in 3.4 g OH^- are
a. $9 N_A$
b. $20 N_A$
c. $1 N_A$
d. $2 N_A$
- Q.17** The mass of carbon used in determining the %age of carbon from CO_2 in the combustion analysis of organic compound is
a. 44
b. 13
c. 12
d. 14
- Q.18** Minimum number of molecules will be in
a. 0.1g of H_2
b. 1.6g of O_2
c. 0.7g of N_2
d. 4.4g of CO_2
- Q.19** Which of the following is an element as well as molecule?
a. Distilled water
b. Sodium metal
c. Helium gas
d. Sea water
- Q.20** 7.0g of gas occupies 5.6 dm^3 at S.T.P, the gas is
a. CO
b. NO
c. CO_2
d. N_2O
- Q.21** A gas mixture contains O_2 and N_2 in the ratio 1:4 by weight. Then the ratio of their number of molecules in the mixture is
a. 1:32
b. 1:4
c. 7:32
d. 3:16
- Q.22** The value of 'n' in determining molecular formula is obtained from the relation
a. $n = \text{molar mass}/\text{atomic mass}$
b. $n = \text{empirical mass}/\text{molar mass}$
c. $n = \text{molar mass}/\text{empirical formula mass}$
d. Cannot be determined
- Q.23** The number of molecules in one gram molecule of a substance is
a. N_A of atoms
b. N_A of ions
c. N_A of molecules
d. N_A of formula unit
- Q.24** Quantitative relationship between reactants and products in a balanced chemical equation is known as
a. Stoichiometry
b. Spectrometry
c. Titrimetry
d. Chromatography
- Q.25** A chemist is more interested about _____ to express the efficiency of a chemical process
a. Theoretical yield
b. Percentage yield
c. Actual yield
d. Non-limiting reactant
- Q.26** The law of conservation of mass and law of definite proportions are obeyed while doing calculation of
a. Limiting reactant
b. Stoichiometry
c. Theoretical yield
d. All of these
- Q.27** Total ions in 4 formula units of CaCl_2 is equal to the number of
a. Electrons in Neon
b. Protons in carbon atom
c. Nucleons in sodium atom
d. Protons in magnesium atom
- Q.28** There are different steps in determining the empirical formula
Step 1. Calculating the number of gram atoms
Step 2. Determining the atomic ratio
Step 3. Determining the percentage composition
What is correct sequence of the above steps
a. 1, 2, 3
b. 3, 2, 1
c. 2, 1, 3
d. 3, 1, 2



- Q.29** The number of atoms in 1.8g of NH_4^+ is approximately
a. 6.02×10^{23} b. 3.01×10^{23}
c. 1.5×10^{23} d. 6.02×10^{22}
- Q.30** The simplest formula of a compound containing 50% element X (At. wt = 20) and 50% of element Y (At. Wt = 10) is
a. XY b. XY_2
c. X_2Y d. X_2Y_2
- Q.31** Select the suitable term about 74.5g of KCl
a. 1g atom b. 1g ion
c. 1g formula unit d. 1g molecule
- Q.32** What is volume occupied by 4.4g of N_2O at STP
a. 22.414 cm^3 b. 2241.4 cm^3
c. 2.2414 cm^3 d. 11.207 cm^3
- Q.33** 5600 cm^3 of oxygen gas is collected at STP from Hydrilla plant by photosynthesis. The mass of oxygen gas produced is:
a. 32g b. 16g
c. 8g d. 4g
- Q.34** $3N_A$ number of ionizable H^+ are present in 1mole of
a. H_2SO_4 b. H_3PO_4
c. $(\text{COOH})_2$ d. CH_3COOH
- Q.35** Which is the mass of CaCO_3 which on heating produces 0.25 moles of carbon dioxide gas
a. 12.5g b. 50g
c. 25g d. 100g
- Q.36** Determine the number of moles of hydrogen atoms in 18g of $\text{C}_6\text{H}_{12}\text{O}_6$
a. 0.6 mole b. 0.1 mole
c. 0.2 mole d. 1.2 mole
- Q.37** How much oxygen is required to react completely with 81g of Al to form alumina
a. 24g b. 48g
c. 72g d. 96g
- Q.38** Total number of oxygen atoms are present in 44g of CO_2
a. $0.5 N_A$ b. $1.0 N_A$
c. $3.0 N_A$ d. $2.0 N_A$
- Q.39** One mole of an organic compound is completely burnt in excess of oxygen which compound produces exactly four moles of water?
a. Butane b. Ethane
c. Ethanol d. Propane
- Q.40** When 2g H_2 gas and 16g O_2 gas react completely to produce H_2O , what is non-limiting reactant?
a. Hydrogen b. Water
c. Oxygen d. Both are consumed completely
- Q.41** The number of carbon atoms in 90g of $\text{C}_6\text{H}_{12}\text{O}_6$
a. $6 \times N_A$ b. $3 \times N_A$
c. $1.5 \times N_A$ d. $0.25 \times N_A$
- Q.42** Volume of nitric oxide gas produced by the following reactions of 14g N_2 with excess of oxygen is $\text{N}_{2(g)} + \text{O}_{2(g)} \xrightarrow{300^\circ\text{C}} 2\text{NO}_{(g)}$
a. 22.4 dm^3 b. 5.6 dm^3
c. 11.2 dm^3 d. 2.8 dm^3
- Q.43** Haemoglobin molecule is _____ times heavier than H_2
a. 17, 000 b. 68, 000
c. 8500 d. 34,000
- Q.44** 2.8g of N_2 molecules contain number of chemical bonds



- a. 6.02×10^{22}
c. 1.8×10^{23}

- b. 1.204×10^{23}
d. 1.8×10^{22}

Q.45 The statement which is incorrect about stoichiometric calculation

- a. All reactants are converted into products
b. No side reaction occurs
c. Law of conservation of mass and law of definite proportion are obeyed
d. Reactions may be reversible

Q.46 How many number of electrons are present in 4.2g of azide ion (N_3^-)

- a. $2.1 N_A$
c. $21 N_A$

- b. $2.2 N_A$
d. $22 N_A$

Q.47 23g of sodium and 24g of magnesium have equal _____ in them

- a. Mass
c. Number of atoms

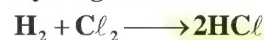
- b. Number of protons
d. All of these

Q.48 4g of CH_4 at $0^\circ C$ and 1 atm pressure contains number of carbon atoms

- a. 6.02×10^{23}
c. 1.5×10^{23}

- b. 3.01×10^{23}
d. 1.5×10^{22}

Q.49 Hydrogen burns in chlorine to produce hydrogen chloride.



The ratio of masses of reactants in chemical reaction is

- a. 2 : 35.5
c. 1 : 71

- b. 2 : 17
d. 1 : 35.5

Q.50 Which one will produce largest number of negatively charged ions in case of 100% dissociation of 1 mole

- a. $AlCl_3$
c. $NaOH$

- b. Na_2SO_4
d. $ZnCl_2$

Q.51 An acid with molecular mass 104 contain 34.6% C, 3.85% H and rest is O. The molecular formula of acid is

- a. $C_3H_4O_4$
c. C_2H_2O

- b. $C_2H_2O_4$
d. C_2HO_2

Q.52 The total number of atoms in 9g of water are

- a. 3.01×10^{23}
c. 6.02×10^{23}

- b. 4.51×10^{23}
d. 9.03×10^{23}

Q.53 A pair that have same number of molecules

- a. 32g O_2 and 32g N_2H_4
c. 30g N_2 and 30g C_2H_6

- b. 34g H_2S and 34g N_2H_4
d. 44g CO_2 and 44g CS_2

Q.54 One mole of which of the following will have different number of electrons than others

- a. Na^{+1}
c. NH_3

- b. H_2O
d. CO^{+1}

Q.55 21g of CaO is obtained by roasting 50g $CaCO_3$. What is the percentage yield of CaO ?

- a. 25%
c. 75%

- b. 50%
d. 60%

Q.56 The number of moles of $KMnO_4$ that contain 1 mole of oxygen atom

- a. 2 moles
c. 0.25 moles

- b. 0.5 moles
d. 1.5 moles

Q.57 Elemental analysis is performed to determine

- a. Molar mass of the compound
c. Empirical formula of a compound

- b. Structural formula of a compound
d. Mass of halogen present in a compound

Q.58 Hydrogen and oxygen have same at STP

- a. Gram molecular weight
c. Gram molecular volume

- b. Protons in the molecules
d. Electrons in the valence shell

Q.59 Which one is incorrect relation at STP

- a. 6g of carbon = 3.01×10^{23} atoms
c. 49 g of H_2SO_4 = 4 moles of atoms

- b. 11.2 dm^3 of CO_2 = 3.01×10^{23} molecules
d. 1 mole of sucrose = 45 moles of atoms



a. 6.02×10^{25}
c. 6.02×10^{22}

b. 6.02×10^{23}
d. 6.02×10^{21}

CHEM T-1

1 gram of H_2 = mass of H_2
1 gram H_2 = mole

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	●	○	16	○	○	○	●	31	○	○	●	○	46	○	○	○	○
2	○	○	○	●	17	○	○	●	○	32	○	●	○	○	47	○	○	○	○
3	○	○	●	○	18	○	○	○	○	33	○	○	○	○	48	○	○	○	○
4	○	○	○	○	19	○	○	○	○	34	○	○	○	○	49	○	○	○	○
5	○	○	○	○	20	○	○	○	○	35	○	○	○	○	50	○	○	○	○
6	○	○	○	○	21	○	○	○	○	36	○	○	○	○	51	○	○	○	○
7	○	○	○	○	22	○	○	○	○	37	○	○	○	○	52	○	○	○	○
8	○	○	○	○	23	○	○	○	○	38	○	○	○	○	53	○	○	○	○
9	○	○	○	○	24	○	○	○	○	39	○	○	○	○	54	○	○	○	○
10	○	○	○	○	25	○	○	○	○	40	○	○	○	○	55	○	○	○	○
11	○	○	○	○	26	○	○	○	○	41	○	○	○	○	56	○	○	○	○
12	○	○	○	○	27	○	○	○	○	42	○	○	○	○	57	○	○	○	○
13	○	○	○	○	28	○	○	○	○	43	○	○	○	○	58	○	○	○	○
14	○	○	○	○	29	○	○	○	○	44	○	○	○	○	59	○	○	○	○
15	○	○	○	○	30	○	○	○	○	45	○	○	○	○	60	○	○	○	○

10

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